

NATIONAL WEATHER SERVICE
BISMARCK, NORTH DAKOTA

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DAKOTA SKIES

NWS Bismarck

Building a weather-ready nation

Spring 2012

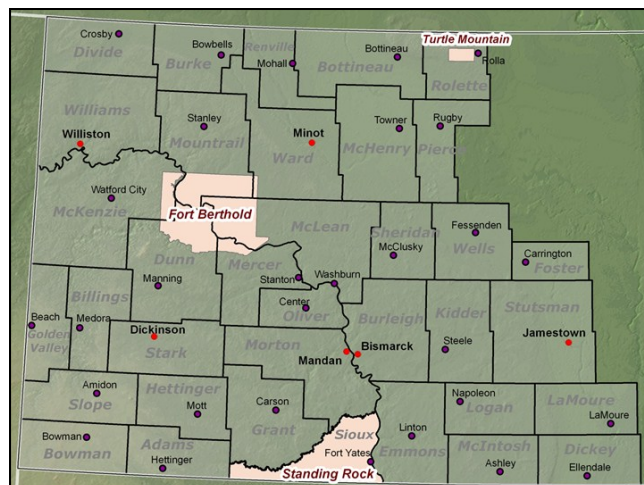
Welcome Message

by Jimmy Taeger

Hello, and thank you for your interest in the spring 2012 edition of the *Dakota Skies*! The *Dakota Skies* is a semiannual newsletter produced each spring and fall by a team of employees at the National Weather Service (NWS) in Bismarck, ND.

This edition is filled with useful information to help the reader prepare for the upcoming summer severe weather season. Additionally, there are interesting articles about changes to the office, an upgrade to the local NWS radars, SkyWarn, the summer climate outlook, staff spotlights, and a summary of the 2011-2012 winter.

For comments, suggestions, or to report severe weather, please call us at (701) 250-4224.



Map of the NWS Bismarck County Warning Area (CWA). We issue advisories, watches, warnings and forecasts for 36 counties and three Tribal Nations in western and central North Dakota. The office is staffed 24 hours a day, seven days a week.

Test Tornado Drill: May 2, 2012

by Tony Merriman



A roping tornado. (Source: NOAA)

The test tornado drill for the entire state of North Dakota will be held on Wednesday, May 2nd around 11:15am CDT. The test tornado warning will be issued by your National Weather Service offices in Bismarck and Grand Forks.

This test warning will alarm on NOAA Weather Radio. This drill is a test of the Emergency Alert System (EAS) and other communication systems. The level of participation from your community will be determined by your local officials, including whether or not the outdoor sirens will sound. Private companies and schools will also decide the level of participation for their respective facilities.

Your National Weather Service encourages you to use this drill to review your plans and practice seeking shelter in the event of an actual tornado whether at home, work, or school. A tornado safety checklist from the American Red Cross can be found at the following website:

<http://www.redcross.org/www-files/Documents/pdf/Preparedness/checklists/Tornado.pdf>

Severe Summer Weather Awareness Week: April 30 - May 4

by Michael Mathews

Severe summer weather awareness week focuses on the many different weather hazards that threaten North Dakota. Understanding the different impacts associated with various types of severe weather will help you make informed decisions to better protect your life and property. The following is a breakdown of the specific type of severe weather highlighted each day during severe summer weather awareness week. Please take the time to read the severe weather threats, definitions, and safety rules.

Monday, April 30: Severe Thunderstorms

A severe thunderstorm produces winds of 58 MPH or greater and/or hail of one inch in diameter (size of a quarter) or greater. Threats associated with severe thunderstorms can be damaging wind, hail, tornadoes, lightning, and flooding. The safest place to be when a thunderstorm is approaching is on the lowest level of a sturdy building, away from windows.

Tuesday, May 1: Tornadoes

A tornado is a violently rotating column of air extending from a thunderstorm and in contact with the ground. To distinguish tornadoes from a funnel cloud or a low cloud, look for a dust whirl or circulating debris on the ground. Tornadoes are divided into six categories based on the destruction they cause. Damage done by a weak EF0 tornado corresponds to wind speeds of 65-85 MPH. Damage done by the most violent EF5 tornado corresponds to wind speeds over 200 MPH. If a tornado is heading your way, get to a basement. If no basement is available, go to an interior room on the lowest level of a building. Stay away from windows.

Enhanced Fujita (EF) Scale

EF Rating	3-Second Wind Gust (mph)
0	65-85
1	86-110
2	111-135
3	136-165
4	166-200
5	Over 200

Wednesday, May 2: Test Tornado Drill

Notification of an approaching tornado can be received through a NOAA weather radio. NOAA weather radios are a reliable source for weather information all day every day from your local National Weather Service (NWS) Forecast Office. Tornado warnings are just one of the many weather hazards received by NOAA weather radios. A test tornado warning will be issued by the NWS around 11:15 am CDT on Wednesday, May 2, 2012, to test communication systems.



NOAA Weather Radio All Hazards acts as an alarm clock for severe weather. It alerts you immediately that a warning has been issued for your area.

Thursday, May 3: Lightning

Lightning kills, on average, 55 people each year in the U.S. If you can hear thunder, you are close enough to the storm to be struck by lightning. If lightning threatens your area, get indoors as soon as possible and stay away from windows. Remember, "When Thunder Roars, Go Indoors!"



Cloud-to-ground lightning. (Source: NOAA)

Friday, May 4: Flooding

Floods and flash floods are the number one cause of weather-related deaths. It only takes six inches of fast-moving water to knock you off your feet, and only two feet of water can cause a vehicle to float. Avoid walking or driving through flooded areas. Remember, "Turn Around, Don't Drown."

"The safest place to be when a thunderstorm is approaching is on the lowest level of a sturdy building, away from windows."

Severe Weather Risk Definitions

Outlook

An outlook is used to indicate that a hazardous weather or hydrologic event may develop. It is intended to provide information to those who need considerable lead time to prepare for the event.

Watch

Issued when the risk of a hazardous event has increased significantly, but its occurrence, location, and/or timing is still uncertain. It is intended to provide enough lead time so that those who need to set their plans in motion can do so.

Warning

Issued when a hazardous event is occurring, is imminent, or has a very high probability of occurring. A warning is used for conditions posing a threat to life or property.

Summer Climate Outlook

by Lindsay Tardif-Huber

Jamestown Normals

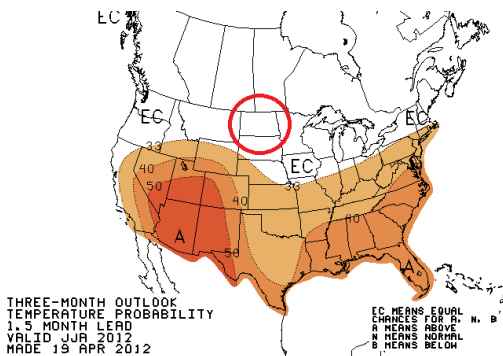
Month	Avg. Temps	Monthly Rainfall
June	64.4°F	3.19"
July	69.9°F	3.35"
August	68.2°F	2.10"

Minot Normals

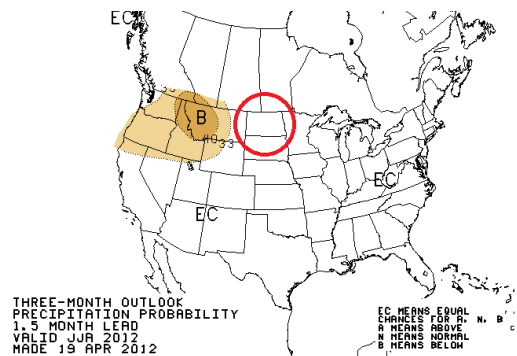
Month	Avg. Temps	Monthly Rainfall
June	63.9°F	3.58"
July	69.7°F	2.43"
August	68.5°F	2.04"

After such a warm winter and start to spring, most North Dakotans are most likely wondering what the summer may have in store for North Dakota. The latest summer seasonal outlook for June through August, which was issued by the Climate Prediction Center on April 19, indicates that North Dakota will be favored for equal chances for a warmer than normal, normal, or cooler than nor-

mal summer as well as equal chances for a wetter than normal, normal, or drier than normal summer. However, the summer seasonal outlook may change through the next several issuances until the official summer seasonal outlook is released on May 17th. It will be available on our website at weather.gov/bis.



Summer temperature outlook. (Source: NOAA)



Summer precipitation outlook. (Source: NOAA)

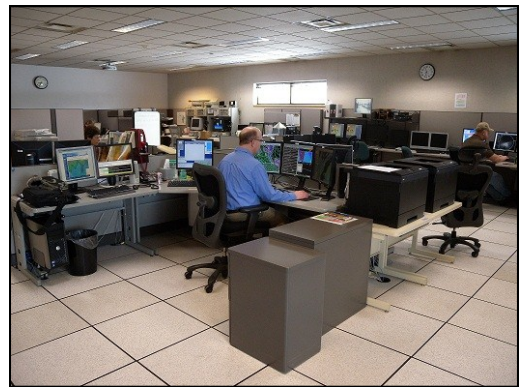
Changes to the Office Layout

by Michael Mathews

“...the operational floor was remodeled with expectations to achieve quicker and more efficient communication among staff during severe weather.”



A few of the staff reviewing the plan during the move.



New operations layout.

The NWS Bismarck operations floor layout underwent a transformation this winter. After around eight years of the same layout, the operational floor was remodeled with expectations to achieve quicker and more efficient communication among staff during severe weather.

After much thought and planning from the entire staff, a final design was decided upon in February. It took nearly a week and a lot of helping hands to

make the change. Several computers and many tables and filing cabinets were carefully moved while normal operations were maintained.

The new look is not only a welcomed change in scenery, but also more open. It also works better for tours. Visitors can fit more comfortably in operations, and can get a better view of the tools we use and what we do here at the National Weather Service.



SkyWarn

by JP Martin

SkyWarn is a program where the National Weather Service comes to your community and presents severe weather information. It's fun, educational, entertaining and best of all, it is **FREE!**

Sessions are typically an hour and a half long with lots of cool video to keep your attention. There is no need to register ahead of time.



The topics covered include, but are not limited to:

- Thunderstorm formation, structure, and strength
- Thunderstorm hazards like wind, hail, flash floods, tornadoes, and lightning
- Reporting severe weather to the NWS
- Staying safe

After the class, participants can sign up to be an official SkyWarn storm spotter volunteer for the National Weather Service, and relay vital ground truth information about storms to warning forecasters. An up-to-date training calendar can be found under the Top News of the Day headline at weather.gov/bis.

Upcoming Talks

Date	Location
April 23	Steele, ND
April 26	McClusky, ND
April 30	Tioga, ND
May 1	Minot, ND
May 3	Linton, ND
May 7	Bowman, ND
May 8	Williston, ND
May 8	Ft. Yates, ND
May 14	Medina, ND
May 21	Beulah, ND
May 29	Mandan, ND

Here is a tentative schedule of upcoming SkyWarn training sessions.

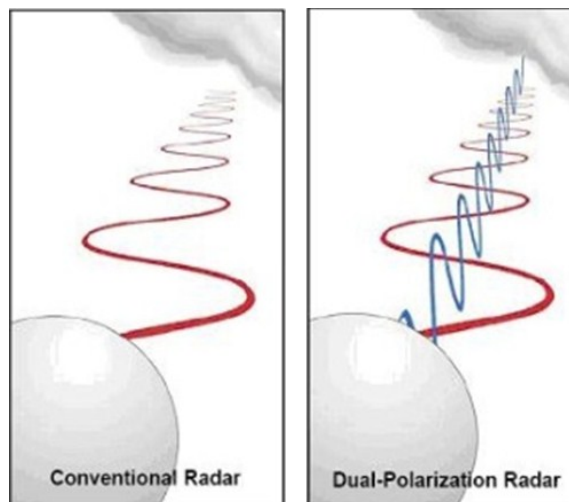
Dual Polarization Upgrade to Radars

by Ken Simosko

Dual Polarization (Dual Pol) is an upgrade to the two Doppler Weather Radars that already exist in the National Weather Service (NWS) Bismarck area. Current Doppler radars send out a horizontal signal which gathers information about thunderstorms and precipitation. Pictures are created with these data to analyze for possible warnings that the NWS issues.

With Dual Pol technology, the signal will be split. Along with the horizontal signal, a vertical signal will also be emitted to gather information. This will give a more detailed and accurate picture of what is occurring in the clouds. See the picture to the right which shows our current Doppler Radar (left), and Doppler Radar with Dual Pol Technology added to it (right).

Some of the benefits of the



A radar beam with a horizontal signal (left), and a radar beam with a horizontal and vertical signal (right).

(Source: NOAA)

Dual Pol for summertime thunderstorms include:

1) Better interrogation into storm scale processes, such as storm evolution, updraft strength, hail detection and

growth.

2) A new product from Dual Pol will allow meteorologists to confirm that a damaging tornado is occurring. (This will not increase lead time in

forecasting a tornado because it is not a predictor of tornadoes. However, in certain situations, this new product allows one to properly identify and confirm that a tornado is on the ground by observing tornado debris through interpretation of the radar picture. This would play a major role when severe thunderstorms spawn tornadoes at night, since darkness inhibits weather spotters and the public from seeing them.)

3) Significant improvements are expected in the estimation of precipitation rates during heavy rainfall, improving detection of flood and flash flood warnings.

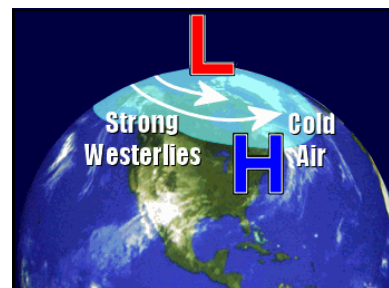
The upgrade to the Bismarck and Minot Air Force Base radars is expected to take place this July. Each radar will be offline for up to two weeks during the upgrade.

Summary of the 2011-2012 Winter Weather Season

by Lindsay Tardif-Huber

The 2011-2012 winter season (December through February) was one for the record books! Even though the winter seasonal outlook issued on November 17th had North Dakota favored for cooler and wetter than normal conditions due to the influences of La Niña, the winter season turned out quite differently than expected. One of the climate drivers responsible for the warm and dry winter was that the Arctic Oscillation, which was in the positive phase. This meant that there was a strong anomalous low pressure over the Arctic region diverting the jet stream north of the state resulting in warmer and drier than normal conditions across the Northern Plains.

Overall, most locations across North Dakota realized a top ten warmest winter on record with 18 new record high temperatures including 17 daily record highs and one all-time record high in January for Minot. Average temperatures ranged from 20 to 24°F, which was 5 to 9°F above normal. Below normal precipitation and snowfall were observed during December, January, and the first half of February. However, in late February, an active pattern developed across the region reducing the overall snowfall and rainfall deficit. Most locations observed very significant snowfall deficits. Below is a table summarizing the 2011-2012 winter season statistics.



Typical set up of large scale high and low pressure systems, and the location of colder air during the positive phase of the Arctic Oscillation. (Source: NWS-Little Rock, Arkansas)

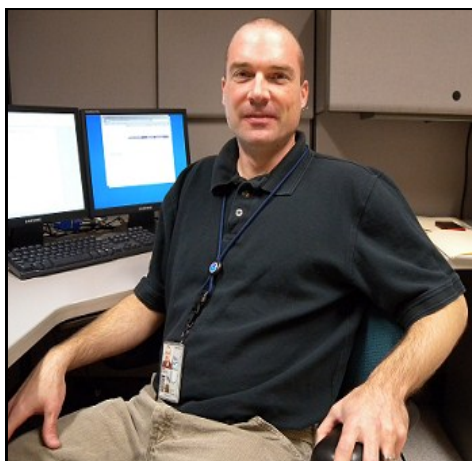
2011-2012 Winter Statistics

City	Avg. Temp (°F)	Rank	Precipitation (in.)	Rank	Snowfall (in.)	Rank
Bismarck	23.4 (+7.8)	7 th warmest	1.38 (-0.05)	54 th driest	12.5 (-13.8)	27 th least snowiest
Williston	22.1 (+8.3)	4 th warmest	0.58 (-1.02)	5 th driest	9.2 (-16.0)	Tied 6 th least snowiest
Minot	23.6 (+8.8)	Tied 2 nd warmest	0.49 (-0.80)	Tied 4 th driest	14.8 (-8.6)	NA 63% of normal
Jamestown	21.8 (+8.7)	Tied 3 rd warmest	0.70 (-0.55)	9 th driest	10.3 (-15.0)	NA 41% of normal
Dickinson	23.6 (+5.4)	7 th warmest	0.55 (-0.32)	14 th driest	NA	NA

Statistics from the 2011-2012 winter (December, January and February) season.

Staff Spotlight: Corey King

by Jimmy Taeger



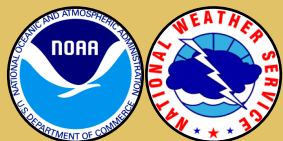
Corey King became a part of the National Weather Service (NWS) Bismarck team in February of this year as our new Emergency Response Specialist (ERS).

Corey was born on Andrews Air Force Base near Washington D.C., and moved to Bellevue, Nebraska when he was seven years old. His interest in meteorology was sparked by storms as a kid. At first he was frightened by them and used to hide in the basement until they passed, but then became interested in them as he got older. Intrigued by the mechanics that caused weather, Corey later attended the University of Nebraska at

Lincoln where he earned a Bachelor of Science degree in Meteorology/Climatology.

Corey's career with the NWS began at the Wichita, Kansas weather forecast office (WFO) as an intern. Later, he worked at the La Crosse, Wisconsin WFO, the Center Weather Service Unit in Olathe, Kansas, the Omaha, Nebraska WFO, and was a senior forecaster at Hastings, Nebraska before eventually moving to Bismarck.

Corey has been married for ten years, and has a seven year old son. Some of his hobbies include jogging and playing racquetball.



**NATIONAL WEATHER SERVICE
BISMARCK, NORTH DAKOTA**

National Weather Service
2301 University Dr.
Building 27
Bismarck, ND 58504

Public: 701-223-4582
Recorded Forecasts: 701-223-3700
Fax: 701-250-4450

**Spring 2012
Dakota Skies Team**

Article Contributors:

J.P. Martin - WCM
Tony Merriman - Lead Forecaster
Ken Simosko - General Forecaster
Jimmy Taeger - Meteorologist
Lindsay Tardif-Huber - Meteorologist
Michael Mathews - Meteorologist

Newsletter Editor:

Jimmy Taeger - Meteorologist

Newsletter Design/Layout:

Tony Merriman - Lead Forecaster

**NWS Bismarck
Management Staff**

Meteorologist-in-Charge (MIC)

Jeff Savadel (Jeffrey.Savadel@noaa.gov)

*Warning Coordination Meteorologist
(WCM)*

JP Martin (John.Paul.Martin@noaa.gov)

Science and Operations Officer (SOO)

Joshua W. Scheck, Ph.D.
(Joshua.Scheck@noaa.gov)

*Electronics Systems Analyst (ESA)
(Vacant)*



National Weather Service Mission Statement:

The National Weather Service (NWS) provides weather, hydrologic, and climate forecasts and warnings for the United States, its territories, adjacent waters and ocean areas, for the protection of life and property and the enhancement of the national economy. NWS data and products form a national information database and infrastructure which can be used by other governmental agencies, the private sector, the public, and the global community.

Brief National Weather Service History:

The National Weather Service has its beginnings in the early history of the United States. Weather has always been important to the citizenry of this country, and this was especially true during the 17th and 18th centuries. The beginning of the National Weather Service we know today started on February 9th, 1870, when President Ulysses S. Grant signed a joint resolution of Congress authorizing the Secretary of War to establish a national weather service.

WE'RE ON THE WEB!



weather.gov/bis

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Staff Spotlight: Michael Mathews

by Jimmy Taeger



Michael Mathews became a part of the National Weather Service (NWS) Bismarck team in January of this year as our newest Meteorologist Intern.

Michael was born in Bardstown, Kentucky. Growing up, he enjoyed watching thunderstorms with his father in their carport. He first went to the University of Louisville to study Engineering, but eventually transferred to Purdue University and changed his major to Atmospheric Science. In the summer of 2007, Michael volunteered at the NWS office in Louisville, Kentucky. After earning his Bachelors of

Science, he got his first job as the staff meteorologist at the University of Kentucky Agricultural Weather Center. During his two years there, he created weather forecasts geared toward the farming community, developed tools useful for farmers, and worked severe weather for the university's home football games.

Michael enjoys the outdoors, and likes to fish and go white water rafting. His favorite sport is basketball, and he plays on the office team, the Weather-Ready Yetis.